

Polysaccharides of pine nut skin, a source of dietary fibre

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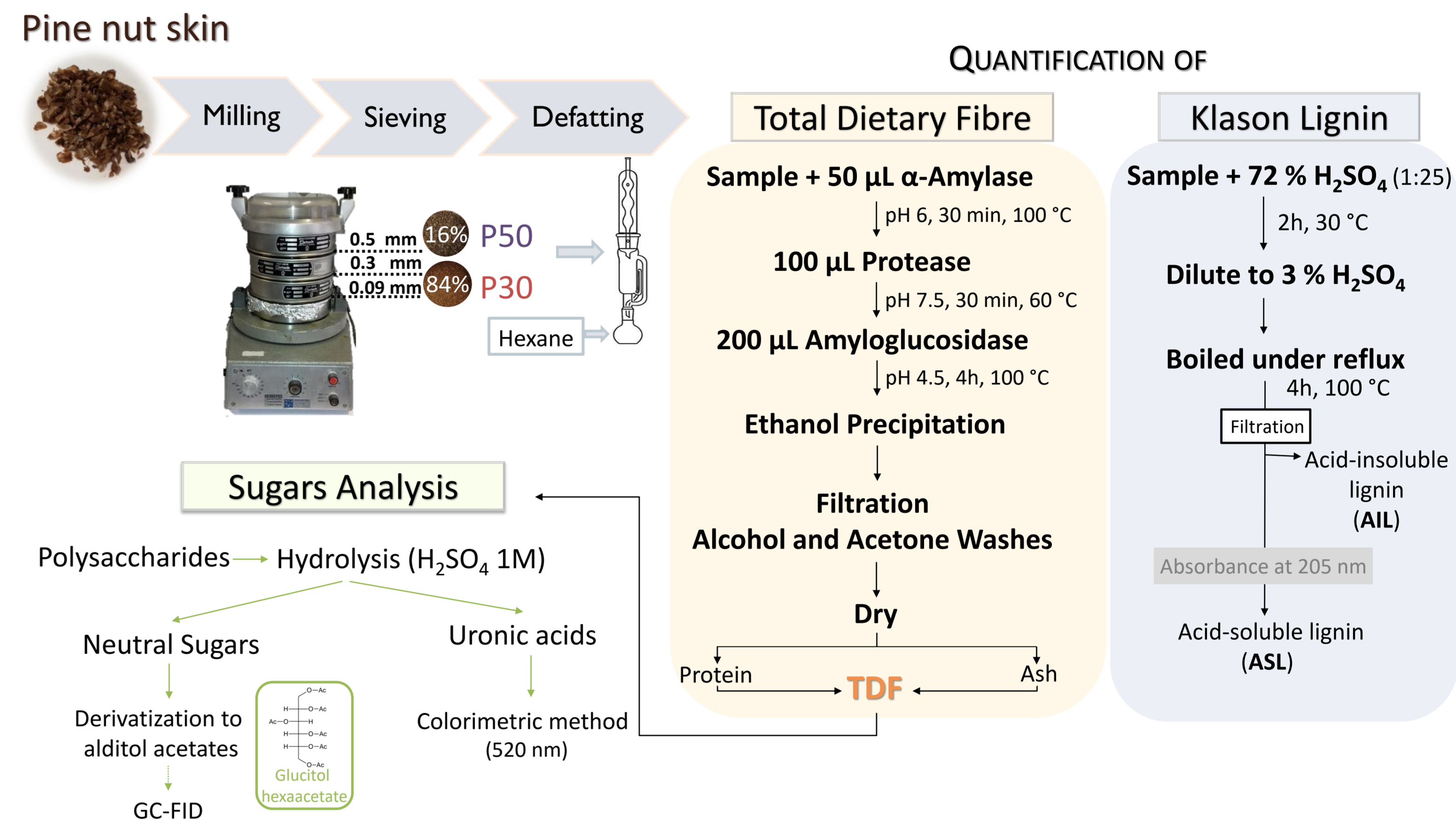
Introduction

Dietary fibre is defined as carbohydrate polymers and lignin that are not hydrolysed by the endogenous human enzymes. Its consumption is related to several **beneficial effects**, such as hypoglycemic, hypolipidemic, hypocholesterolemic and immunomodulatory [1]. **Pine nut skin** is a **by-product** of the pine nut processing, and although its composition is not yet established, **nut skins** have been demonstrated as **valuable sources of phytochemicals** with health beneficial effects, namely dietary fibre [2].

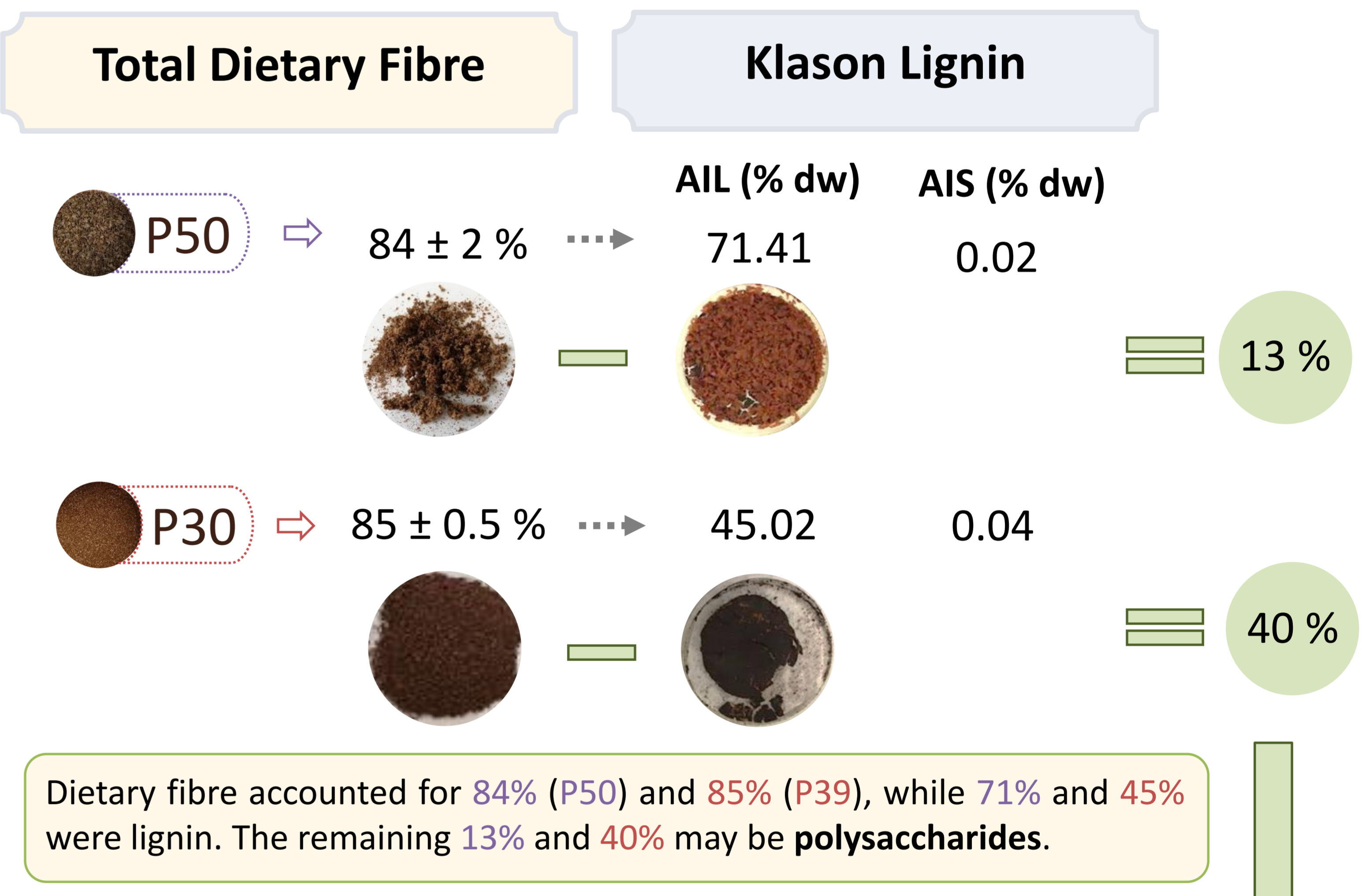
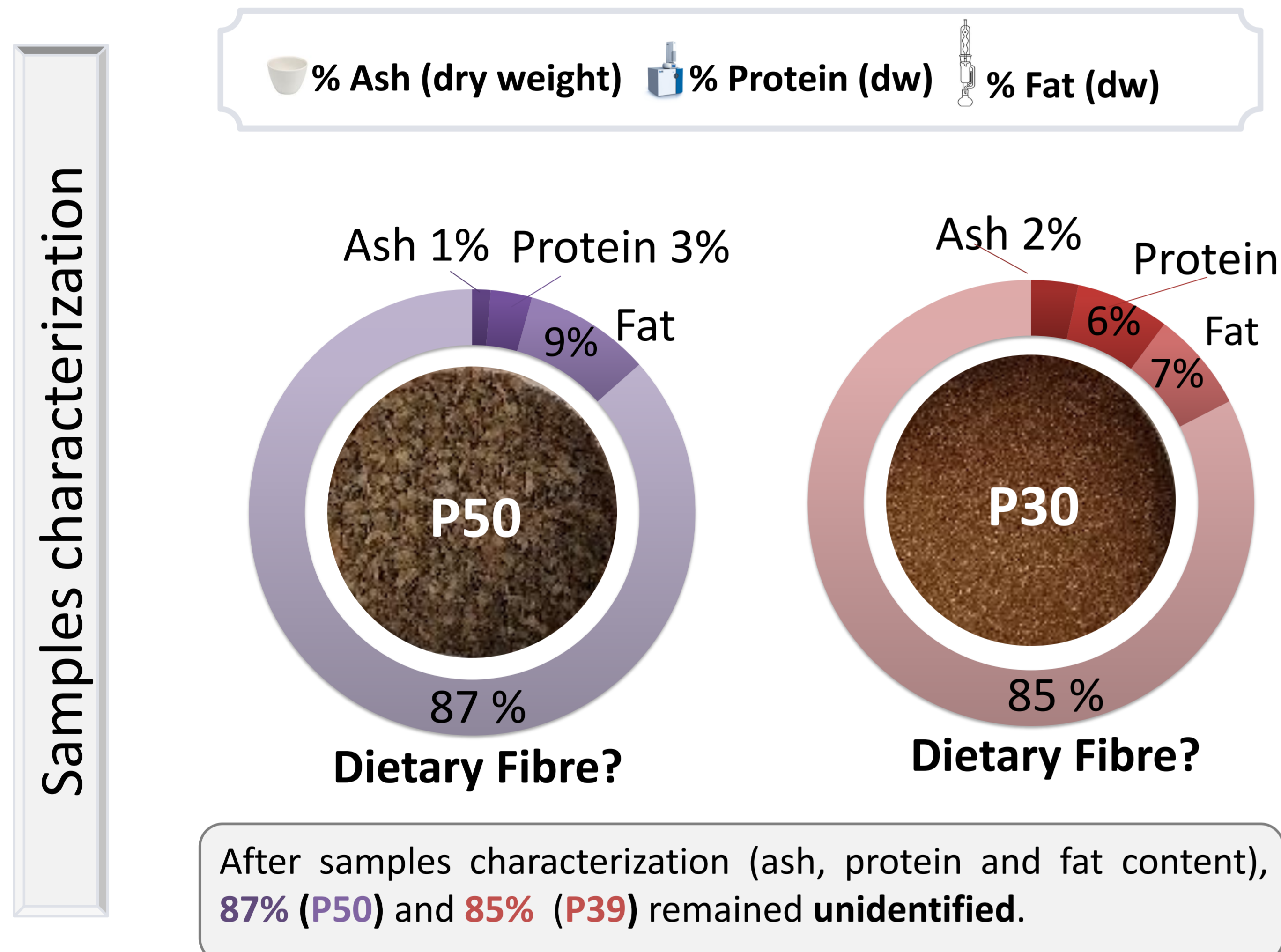
Objectives

In this work, the **dietary fibre** of **pine nut skin** was quantified and its **polysaccharides** were analysed by sugar analysis.

Methods



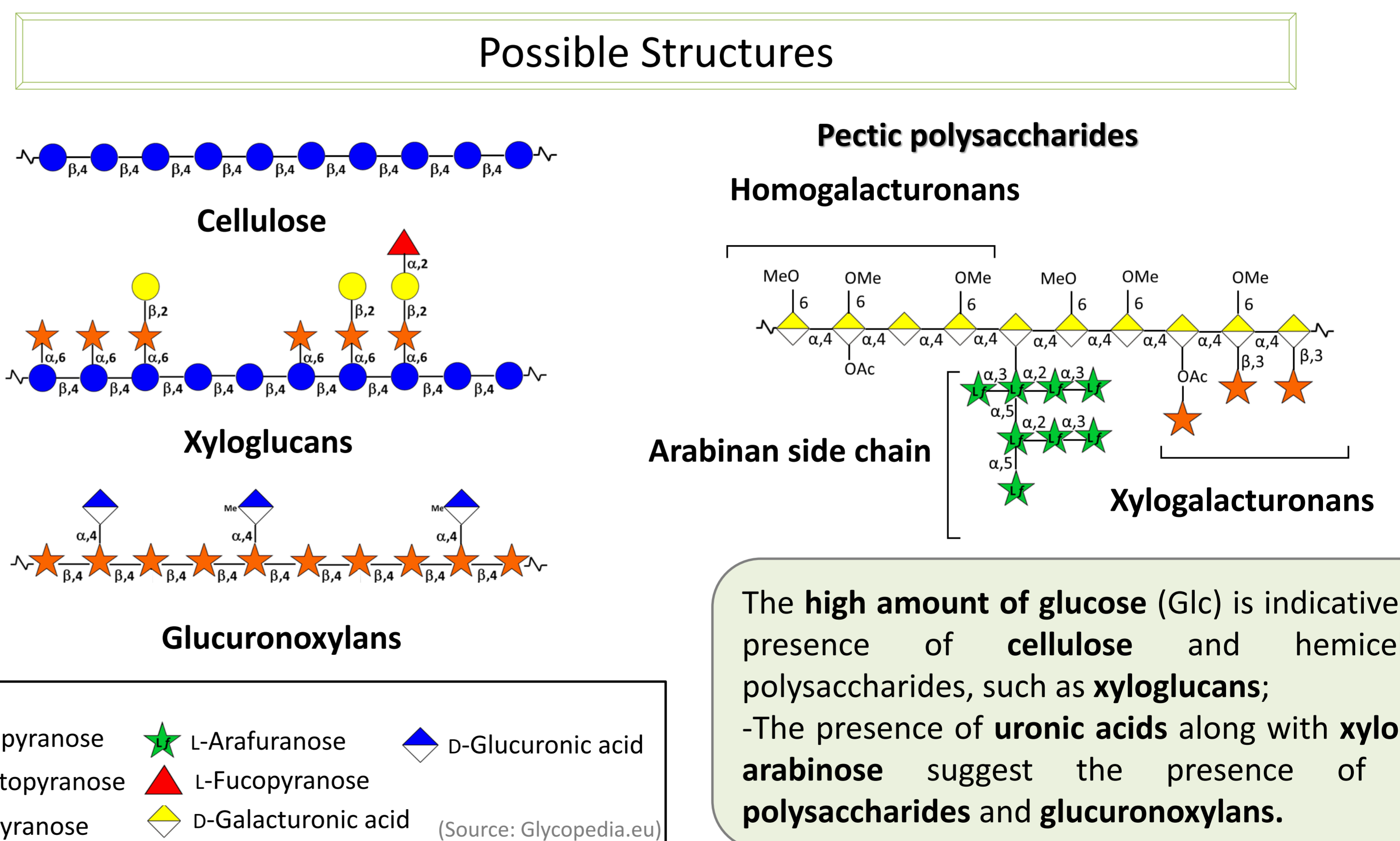
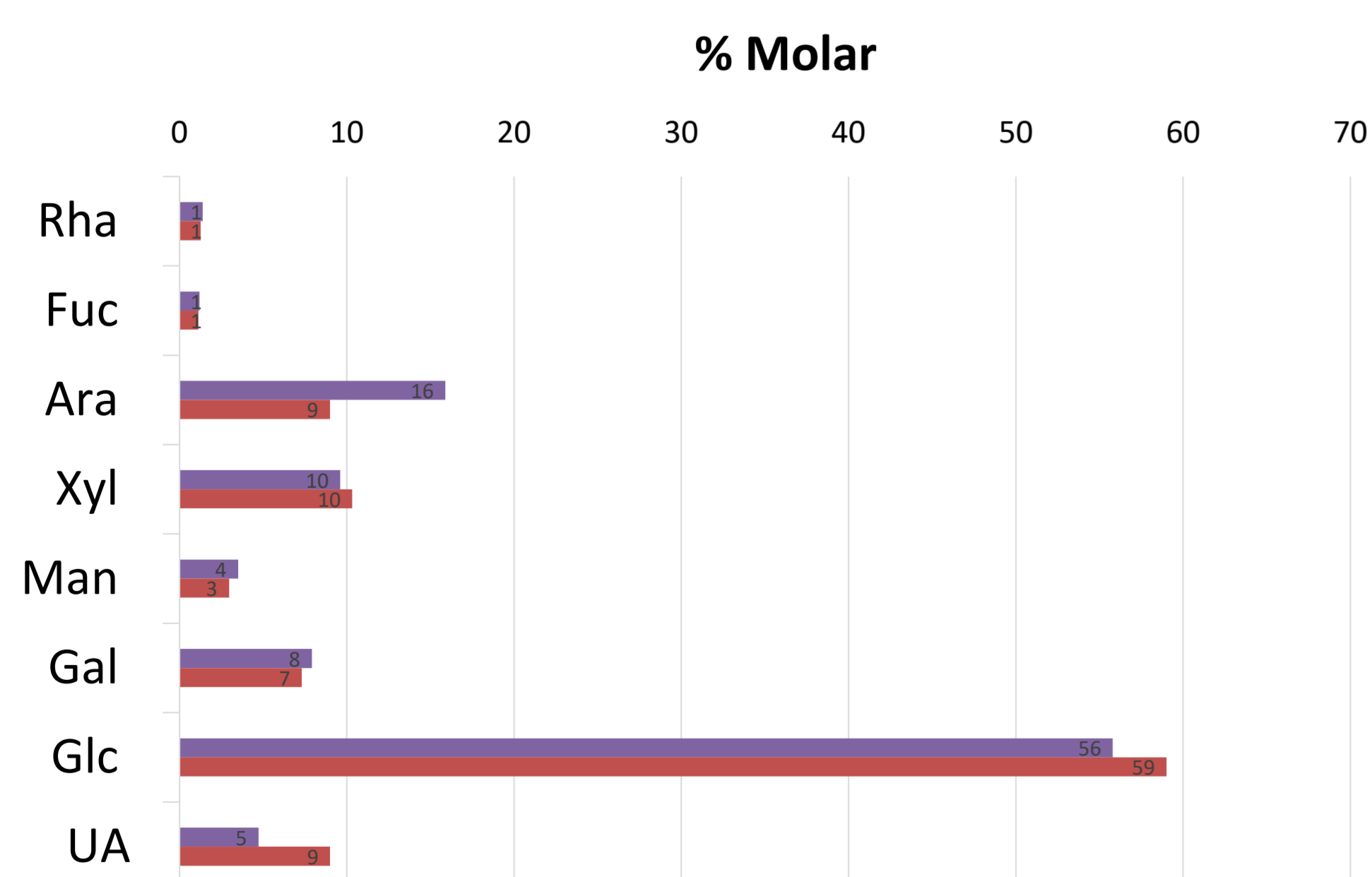
Results



Polysaccharides

Sugars analysis confirmed polysaccharides as the remaining constituents of TDF, totalling **13% (P50)** and **36% (P30)**.

Sugar composition of TDF



Conclusion

- Sugars analysis** allows the accurate quantification of dietary fibre polysaccharides in fibre-rich materials, while giving further insight into the possible structures present.
- Pine nut skin** was shown as a **source of dietary fibre**, and a simple mechanical separation allows to obtain polysaccharide or lignin rich fractions. As lignin is generally assumed to be resistant to microbial degradation, while inhibiting carbohydrate fermentation [3], dietary fibre from **P30** may have more pronounced beneficial effects than the whole pine nut skin itself.

References

- [1] G. Kalala et al., *Int. J. Food Sci. Nutr.*, vol. 69, pp. 682–689, 2018.
- [2] G. Mandalari et al., *J. Food Compos. Anal.*, vol. 23, pp. 166–174, 2010.
- [3] P. Niemi et al., *J. Agric. Food Chem.*, vol. 61, pp. 6754–6762, 2013.